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MAPS SHOWING GEOLOGY, OIL AND GAS FIELDS, AND GEOLOGIC PROVINCES OF THE ARCTIC

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Scale 1:6,500,000

ABOUT THIS MAP

This digital compilation is an interim product of the U.S. Geological Survey's World Energy Project
(WEP) and part of a series published on CD-ROMs.
The goal of the WEP is to assess the undiscovered, technically recoverable oil and gas resources of the world.
Results of this assessment were reported in 2000 (see USGS DDS-60).

This map has been compiled from the Circumpolar Geological Map of the Arctic, by Okulitch A.V.,
Lopatin B.G., and Jackson H.R., published by the Geological Survey of Canada in 1989
at a scale 1:6,000,000.

Data processing steps:
1. The original map was scanned on a large format Ideal scanner in gray-scale mode with a resolution of 200 dpi
and transformed to ArcInfo Grid.
2. The grid from step 1 was transformed to Polar Stereographic projection using a second order polynomial
transformation (ArcInfo GRIDWARP utility).
3. Reference points for transformation were a combination of latitude-longitude intersections taken from the paper
map and the same points projected to Polar Stereographic in ArcInfo using the PROJECT utility.
4. A number of piecewise rubber sheeting transformations were applied to the grid from step 3 using ArcInfo
CONTROLPOINTS and ADJUST utilities.
5. Reference points for transformations were taken from ESRI's shoreline data layer projected to Polar Stereographic
projection.
6. On-screen digitization was performed using the rectified grid from step 5 as a backdrop in ArcInfo ARCEDIT.
7. In the geology coverage, geologic attributes were assigned to the AGE and AGE_GEN items of the Polygon
Attribute Table (PAT). Onshore and offshore polygons were attributed separately.
8. Geologic age attributes of the Canadian portion of this map were compared with those from the Geological Map
of Canada CD-ROM (Map D1860A, 1997).
As the first step more than 600 unique values from Map D1860A were transformed to the corresponding ages
of this map legend and used as a reference in assigning final age values.
9. The International Bathymetric Chart of the Arctic Ocean (IBCAO) was downloaded from NOAA web site in
ArcView shape file format, converted to ArcInfo coverage, and clipped with the geology coverage.
10. The USGS Geologic Provinces from the USGS DDS-60 publication were projected to Polar Stereographic
projection, and clipped with the geology coverage.

Data are provided in both unprojected (geographic coordinates) and projected coordinates.
Projection - Stereographic,
Latitude of central meridian - 0
Latitude of projection center -90
View - North Pole
Latitude of standard parallel - 75

DESCRIPTION OF MAP UNITS

Q - Quaternary
N-Q - Neogene and Quaternary
N2-Q - Pliocene to Quaternary
N2-Q1 - Pliocene to lower Quaternary
N - Neogene
N2 - Pliocene
N1 - Miocene
Pg-N - Paleogene and Neogene
Pg3-Q - Oligocene to Quaternary
Pg3-N1 - Oligocene to Miocene
Pg2-N - Eocene to Neogene
Pg2-N1 - Eocene to Miocene
Pg - Paleogene
Pg3 - Oligocene
Pg23 - Eocene and Oligocene
Pg2 - Eocene
Pg12 - Paleocene and Eocene
Pg1 - Paleocene
Mz - Mesozoic
K2-Pg - Upper Cretaceous and Paleogene
K1-Pg - Lower Cretaceous to Paleogene
K2-Pg1 - Upper Cretaceous to Paleocene
K1-Pg1 - Lower Cretaceous to Paleocene
K - Cretaceous
K2 - Upper Cretaceous
K1 - Lower Cretaceous
J-K - Jurassic and Cretaceous
J-K1 - Jurassic to Lower Cretaceous
J3-K1 - Upper Jurassic to Lower Cretaceous
J - Jurassic
J3 - Upper Jurassic
J23 - Middle and Upper Jurasssic
J2 - Middle Jurassic
J12 - Lower and Middle Jurasssic
J1 - Lower Jurassic
Tr-J - Triassic and Jurassic
Tr3-J1 - Upper Triassic to Lower Jurassic
Tr - Triassic

Tr3 - Upper Triassic
Tr23 - Middle and Upper Triassic
Tr2 - Middle Triassic
Tr12 - Lower and MiddleTriassic
Tr1 - Lower Triassic
Pz-Mz - Paleozoic and Mesozoic
Pz2-Tr - Upper Paleozoic to Triassic
Pz - Paleozoic
P-J - Permian to Jurassic
P-Tr - Permian to Triassic
P2-Tr - Upper Permian to Triassic
P - Permian
P2 - Upper Permian
P1 - Lower Permian
C-P - Carboniferous and Permian
C2-P1 - Upper Carboniferous to Lower Permian
C-P1 - Carboniferous to Lower Permian
C-J - Carboniferous to Jurassic
C-Tr - Carboniferous to Triassic
C - Carboniferous
C2 - Upper Carboniferous
C1 - Lower Carboniferous
D-C - Devonian and Carboniferous
D3-C - Upper Devonian to Carboniferous
D-C1 -Devonian to Lower Carboniferous
D - Devonian
D3 - Upper Devonian
D23 - Middle and Upper Devonian
D2 - Middle Devonian
D12 - Lower and Middle Devonian
D1 - Lower Devonian
Pz1 - Lower Paleozoic
S-D - Silurian and Devonian
S - Silurian
S2 - Upper Silurian
S1 - Lower Silurian
O-D - Ordovician to Devonian
O-S - Ordovician and Silurian
O - Ordovician
O23 - Middle and Upper Ordovician
O1 - Lower Ordovician
Cm-D - Cambrian to Devonian
Cm-S - Cambrian to Silurian
Cm-O - Cambrian and Ordovician
Cm - Cambrian
Cm3 - Upper Cambrian
Cm23 - Middle and Upper Cambrian
Cm2 - Middle Cambrian
Cm12 - Lower and Middle Cambrian

Cm1 - Lower Cambrian
Pr-Pz1 - Proterozoic to lower Paleozoic
Pr3-Pz1 - Upper Proterozoic to lower Paleozoic
Pr3-S - Upper Proterozoic to Silurian
Pr-Cm - Proterozoic to Cambrian
Pr3-Cm - Upper Proterozoic to Cambrian
Pr23-Cm - Middle and Upper Proterozoic to Cambrian
Pr3 - Upper Proterozoic
Pr23 - Middle and Upper Proterozoic
Pr2 - Middle Proterozoic
Pr12 - Lower and Middle Proterozoic
Pr1 - Lower Proterozoic
Ar-Pr - Archean and Proterozoic
Ar-Pr1 - Archean and Lower Proterozoic
Ar - Archean
Ice